

WHAT IS CLAIMED IS:

1. A method for operating a data network having at least one transmission link, each of said at least one transmission link having a transmitter and a receiver, said method comprising the steps of:

determining, for at least one transmission link in a test mode, an actual level reserve in the direction of a sensitivity limit and thus between an actual transmitting power of the transmitter and the actual sensitivity limit of the receiver; and

determining for said at least one transmission link in a test mode, an actual level reserve in the direction of an overload limit and thus between the actual transmitting power of the transmitter and the actual overload limit of the receiver.

2. The method as claimed in claim 1, further comprising the step of regulating at least one of the transmitting power of the transmitter in said at least one transmission link, and the sensitivity of the receiver as a function of the actual reserve level in the direction of the sensitivity limit.

3. The method as claimed in claim 1, further comprising the step of regulating at least one of the transmitting power of the transmitter of said at least one transmission link, and the sensitivity of the receiver as a function of

the actual level reserve in one of the directions of the sensitivity limit and the overload limit.

4. The method as claimed claim 1, further comprising the step of monitoring whether the variation of the level reserve with time in the direction of the sensitivity limit or in the direction of the overload limit shows a decrease in the reserve; and

determining a rate of decrease of the reserve from said decrease in the reserve over time, whereby when said rate of decrease is at least a predetermined maximum value, a corresponding report is generated.

5. The method according to claim 1, further comprising the step of monitoring whether a variation of the level reserve with time in the direction of the sensitivity limit or in the direction of the overload limit shows a decrease in the reserve; and

determining a rate of decrease of the reserve from said decrease in the reserve over time, whereby a time at which the level reserve reaches a predetermined minimum value is calculated as a function of said rate of decrease so that when the calculated time reaches or falls below a predetermined minimum value, a corresponding report is generated.

6. The method as claimed claim 1, wherein said transmitter of a transmission link to be checked sends, in a test mode, a test signal to the receiver, whereby in the test mode the actual transmitting power of the transmitter is reduced by a predetermined amount of decrease or increased by a predetermined amount of increase so that a determination is made whether the test signal is properly received so that a negative test result is determined when the test signal is not properly received and a positive test result is determined when the test signal is properly received at the receiver.

7. The method according to claim 6, wherein said transmitter of a transmission link to be checked sends, in a test mode, a test signal to the receiver, whereby in the test mode the actual sensitivity of the receiver is reduced by a predetermined amount of decrease or increased by a predetermined amount of increase so that a determination is made whether the test signal is properly received so that a negative test result is determined when the test signal is not properly received and a positive test result is determined when the test signal is properly received at the receiver.

8. The method according to claim 6, wherein sending, receiving and evaluation of the test signal in test mode is repeated with an incrementally larger amount of reduction or increase at least until the test result is negative.

9. The method according to claim 1, wherein the test mode is followed by an adaptation mode, wherein the actual transmitting power of the transmitter or the actual sensitivity of the receiver is increased, when the actual level reserve found for the sensitivity is below a predetermined lower limiting value.

10. The method according to claim 1, wherein the test mode is followed by an adaptation mode, wherein the actual transmitting power of the transmitter or the actual sensitivity of the receiver is reduced, when the actual level reserve found in the direction of the overload limit is below a predetermined lower limiting value.

11. The method according to claim 1, wherein the data network has a plurality of network subscribers arranged between two successive transmission links, whereby each network subscriber includes a receiver of the incoming transmission link and the transmitter of the outgoing transmission link, and whereby one of said network subscribers is assigned a master function, which initiates the test mode for at least one transmission link.

12. The method according to claim 11, wherein the master network subscriber initiates the test mode as a function of at least one predetermined event.

13. The method according to claim 12, wherein the predetermined event is the shut-down or start-up of the data network or external instructions for diagnosis.

14. The method according to claim 1, wherein for at least one transmission link, the transmitter is scaled with respect to its transmitting power.

15. The method according to claim 1, wherein for at least one transmission link, the receiver is scaled with respect to its sensitivity.

16. The method according to claim 1, wherein the data network is one of an electronic network, an optical data network, a cellular radio and an ultrasonic network.